

### **REMARKS**

Claims 1-22 are pending in the present application. Claims 1-9 and 16 have been amended to improve the clarity of the invention. No new matter has been added by way of the above-amendment.

The above-amendment has not been made for the sake of patentability and/or does not narrow the scope of the invention.

The following sections correspond to the sections of the outstanding Office Action.

### **Lack of Unity**

The Examiner has restricted the claims under 35 USC 121 and 372. During a telephone conversation on September 8, 2005 between the Examiner and Applicants' representative, Mr. Marc S. Weiner, the Examiner described the groupings as follows:

Group I: Claims 1-9, drawn to an acrylic rubber; and

Group II: Claims 10-22, drawn to a crosslinkable acrylic rubber composition (claims 10-16) and a shaped article (claims 17-22).

*Applicants now affirm the election of Group I drawn to claims 1-9 with traverse.*

Applicants are concerned that the Examiner has now (in the outstanding Office Action) modified the original Restriction Requirement and has changed the grouping of the claims by splitting Group II as follows:

Group I: Claims 1-9, drawn to an acrylic rubber;

Group II: Claims 10-16, drawn to a crosslinkable acrylic rubber composition; and

Group III: Claims 17-22, drawn to a shaped article.

In view of Applicants' election of Group I, claims 1-9, the issue is not pressing. However, Applicants respectfully request that the Examiner clarify for the record that the grouping of the claims as set forth in the outstanding Office Action is the correct grouping.

Applicants now provide details as to why the Lack of Unity finding is traversed.

Based upon the Examiner's comments, the Examiner appears to be aware that the present application is a national phase 371 application, and as such, the claims should be reviewed under unity of invention practice without regard to the practice in national applications filed under 35 USC 111.

Rule 13.1 states:

[t]he international application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention").

According to Rule 13.2, the requirement for unity of invention "shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression 'special technical features' shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art."

Applicants have carefully considered the Examiner's comments in the paragraph numbered as "2" on page 2 of the outstanding Office Action, but respectfully disagree that the inventive claims lack unity of invention. Applicants respectfully submit that there is a corresponding technical feature, i.e., the acrylic rubber of claim 1, to all of Groups I-III. The Examiner will note that claim 10 (rubber composition) depends from claim 1 and claim 17 (shaped article) depends from claim 10.

With respect to the differences between claims 1 (Group I) and 10 (Group II), the Examiner appears to be of the position that there is no corresponding technical feature, since the acrylic rubber (of claim 1) is combined with a crosslinking agent in claim 10 thereby changing

the structure of the acrylic rubber. Applicants agree with the Examiner that should the crosslinking reaction occur, the structure of the acrylic rubber will change. However, the Unity of Invention rules allow for some change in structure without breaking unity.

The Examiner's attention is directed to MPEP 1850(III)(C) titled "Intermediate and Final Products" which reads as follows:

Unity of invention shall be considered to be present in the context of intermediate and final products where the following two conditions are fulfilled:

(A) The intermediate and final products have the same essential structural element, in that:

(1) The basic chemical structures of the intermediate and the final products are the same, or

(2) The chemical structures of the two products are technically closely interrelated, the intermediate incorporating an essential structural element into the final product; and

(B) The intermediate and final products are technically interrelated, this meaning that the final product is manufactured directly from the intermediate or is separated from it by a small number of intermediates all containing the same essential structural element. (Emphasis added).

In the present situation, Applicants respectfully submit that the subject matter of claims 1 and 10 meet the requirements of the emphasized portion of the quoted section of the MPEP. It is clear that an essential structural element of the crosslinkable (or crosslinked) composition of claim 10 is the acrylic rubber described in claim 1. Certainly, Applicants have not given any indication that the crosslinking agent of claim 10 is in and of itself the patentable feature of claim 10. Also, the crosslinkable (or crosslinked) composition of claim 10 is manufactured directly from the acrylic rubber described in claim 1. Accordingly, there is Unity of Invention with respect to Group I and Group II.

Furthermore, the subject matter of Groups II and III relate to one another in a similar fashion to the subject matter of Groups I and II.

In view of the fact that there is Unity of Invention, rejoinder of Groups I, II and III is respectfully requested.

### **Claim Objections**

The Examiner objects to claims 1 and 3 for not being in the proper Markush format.

In response, Applicants have amended claims 1 and 3 to be in proper Markush format. Accordingly, withdrawal of the objection is respectfully requested.

### **Issues under 35 U.S.C. 103**

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriyama et al. (US Pregrant Application Publication 2001/0005742) in view of Piloni et al. (US 3,196,133). Applicants respectfully traverse the rejection.

The Examiner is aware that Moriyama et al. *fail* to teach or fairly suggest monomer (A) which is a butenedioic acid monoester monomer having an alicyclic structure, as presently claimed. Moriyama et al. teach a butenedioic acid monoester monomer having an alkyl structure *which is not alicyclic*.

In order to cure this deficiency, the Examiner cites Piloni et al. for teaching the alicyclic structure. Specifically, Piloni et al. teach the use of cyclohexyl hydrogen maleate at column 5, lines 24-25 as being an exemplary monohydrogen-monohydrocarbonyl ester (D). Generically, Piloni et al. teach that the cyclohexyl group can be a hydrocarbonyl group of 1-10 carbon atoms as described at column 2, line 20-24.

Applicants respectfully submit that *the combination of references is improper*. It is improper to combine references which are in separate fields of endeavor. Moriyama et al. teach that the rubbery acrylic elastomer is useful in the field of sealing materials such as gaskets, oil seals, "O" rings or in the field of hose materials, see paragraph [0005]. This is in distinction to Piloni et al. wherein the composition is taught to be useful in the field of coatings, paints,

lacquers, inks, adhesives and the like, see column 1, lines 40-44. Accordingly, the skilled artisan would not be motivated to look to the teachings of Piloni et al. to modify the acrylic elastomer of Moriyama et al., since the vinyl chloride resin of Piloni et al. is not taught to be used in the same field of endeavor as the acrylic elastomer of Moriyama et al.

The mere fact it is possible for isolated disclosures to be combined does not render the result of that combination obvious absent a logical reason of record, which justifies the combination. *In re Regel et al.* (CCPA 1975) 526 F.2d 1399, 188 USPQ 136. MPEP 2143.01 discusses both *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992) which are relevant to the instant facts.

In *In re Fine*, the claims were directed to a system for detecting and measuring minute quantities on nitrogen compounds comprising a gas chromatograph, a converter which converts nitrogen compounds into nitric oxide by combustion, and a nitric oxide detector. The primary reference disclosed a system for monitoring sulfur compounds comprising a chromatograph, combustion means, and a detector, and the secondary reference taught nitric oxide detectors. The examiner and Board asserted that it would have been within the skill of the art to substitute one type of detector for another in the system of the primary reference, however the court found there was no support or explanation of this conclusion and reversed.

In *In re Jones*, the claimed invention was the 2-(2'-aminoethoxy) ethanol salt of dicamba, a compound with herbicidal activity. The primary reference disclosed *inter alia* the substituted ammonium salts of dicamba as herbicides, however the reference did not specifically teach the claimed salt. Secondary references teaching the amine portion of the salt were directed to shampoo additives and a byproduct of the production of morpholine. The court found there was no suggestion to combine these references to arrive at the claimed invention.

In the instant case, both Moriyama et al. and Piloni et al. are concerned with different fields of endeavor. Similar to the holdings in *In re Fine* and *In re Jones*, the skilled artisan would not be motivated to look to the teachings of Piloni et al. to modify the acrylic elastomer of Moriyama et al., since the vinyl chloride resin of Piloni et al. is not taught to be used in the same

field of endeavor as the acrylic elastomer of Moriyama et al. Accordingly, the presently claimed invention is patentable over the cited references and withdrawal of the rejection is respectfully requested.

Applicants respectfully submit that even assuming *arguendo* that the combination of Moriyama et al. and Piloni et al. make the present invention *prima facie* obvious (which it does not), the *prima facie* case would be overcome by the **unexpectedly superior properties** associated with the inventive acrylic rubber.

As mentioned above, a difference between the inventive acrylic rubber and the acrylic rubber of Moriyama et al., is that the inventive acrylic rubber is made with a butenedioic acid monoester monomer having an alicyclic structure whereas Moriyama et al. teach a butenedioic acid monoester monomer having an alkyl structure *which is not alicyclic*. The presently claimed composition which contains unit (A) which is a butenedioic acid monoester monomer having a alicyclic structure gives unexpectedly superior properties to the composition of Moriyama et al. As evidence of this fact, the Examiner's attention is directed to the difference in properties between Inventive Example 4 and Comparative Example 3 as described in the present specification. The acrylic rubber of Inventive Example 4 was prepared using monocyclohexyl maleate (a butenedioic acid monoester monomer having an alicyclic structure) whereas Comparative Example 3 which uses acrylic rubber (F) was prepared using mono-n-butyl maleate (a butenedioic acid monoester monomer having an alkyl structure *which is not alicyclic*) as described in the following Table:

Table 1

Composition of Acrylic Rubbers		
Kind of acrylic rubber	D	F
Ethyl acrylate	38	38
n-Butyl acrylate	40	40
2-Methoxyethyl acrylate	20	20
Monocyclohexyl fumarate	—	—
Monocyclohexyl maleate	2	—
Mono-n-butyl fumarate	—	—
Mono-n-butyl maleate	—	2

This comparative testing using mono-n-butyl maleate in Comparative Example 3 (acrylic rubber "F" in the above table) is proper, since Examples 5-10 of Moriyama et al. incorporate mono-n-butyl maleate, see Table 1 on page 4 of Moriyama et al.

The results of the tests are shown in the following Table:

**Table 3**

	<b>Ex. 4</b>	<b>Co. Ex. 3</b>
<b>Ingredients in acrylic rubber composition (parts)*1</b>		
Acrylic rubber D	100	—
Acrylic rubber E	—	—
Acrylic rubber F	—	100
4,4'-Diaminodiphenyl ether	0.5	0.5
Di-o-tolylguanidine	2	2
Mooney scorch time (t5)(min)	17.8	10
<b>Extrusion processability</b>		
Edge	4	2
Smoothness	4	2
Corner	4	3
<b>Dry physical properties</b>		
Tensile strength (Mpa)	11.2	10.6
Elongation (%)	220	200
Hardness (JIS A)	70	72
<b>Heat resistance</b>		
Change in elongation (%)	-5	-14
Change in hardness (%)	8	11
<b>Permanent set (%)</b>	<b>18</b>	<b>38</b>

\*1 Each acrylic rubber composition further comprises 60 parts of carbon black, 2 parts of stearic acid and 2 parts of 4,4'-bis( $\alpha,\alpha$ -dimethylbenzyl)diphenylamine(antioxidant) (these ingredients are not recited above in the table)

\*2 Accumulated frequency of residual flashes at 10 times molding

Clearly these results show that the inventive acrylic rubber which incorporates an alicyclic butenedioic acid monoester monomer has improved scorch resistance, dry physical properties, heat resistance, permanent set, residual flash and fluidity when compared to essentially the same acrylic rubber except that the alicyclic ester is replaced with an n-alkyl ester.

Application No. 10/517,705  
Amendment dated February 3, 2006  
Reply to Office Action of October 3, 2005

Docket No.: 1600-0157PUS1

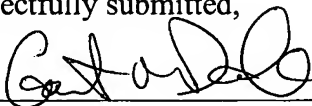
The skilled artisan would not find the improvement expected based upon the disclosure of Moriyama et al. and Piloni et al.

Accordingly, even assuming *arguendo* that the combination of Moriyama et al. and Piloni et al. make the present invention *prima facie* obvious (which it does not), the *prima facie* case would be overcome by the unexpectedly superior properties associated with the inventive acrylic rubber. As such, withdrawal of the rejection is respectfully requested.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: February 3, 2006

Respectfully submitted,

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